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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/651,821	08/30/2000	John Laurence Melanson		2274

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EXAMINER

D AGOSTA, STEPHEN M

ART UNIT	PAPER NUMBER
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2684

DATE MAILED: 04/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/651,821	Applicant(s) MELANSON, JOHN LAURENCE	
	Examiner Stephen M. D'Agosta	Art Unit 2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 9-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 9-25 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>1,2</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. **Claims 1-8**, drawn to a radio receiver with switched mode circuitry for setting switching frequency, classified in class 455, subclass 130 and 296.
- II. **Claims 9-15**, drawn to an amplifier, classified in class 330, subclass 109.
- III. **Claims 16-25**, drawn to a power supply, classified in class 330, subclasses 114, 127, 112, 123 and 199+.

2. Inventions I, II and III are related as combination and sub-combination disclosed as usable together in a single combination. The sub-combinations are distinct from each other, if they are shown to have separate utility. Invention I has utility as a radio receiver while invention II, however, has utility based on amplification and invention III has utility based on power supplies. It is clear that invention I can be used independently, of invention II and invention III. See MPEP & 806.05(d))

3. Because inventions I, II and III are unrelated for the reason given above and have acquired a separate status in the art as shown by their different classifications, and have acquired a separate status in the art based on their recognized divergent subject matter, and the search required for group I is not required for group II (or III), restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Jim Murphy (Reg. #34,503) on December 20, 2002 a provisional election was made with traverse to prosecute the invention of the radio receiver, claims 1-8. **Affirmation of this election must be made by applicant in replying to this Office action.** Claims 9-25 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention. Mr. Jim Murphy can be reached at telephone number 214-745-5374.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-3 and 6-8 rejected under 35 U.S.C. 102(a) as being anticipated by Kazuhiro JP-11332230 (hereafter Kazuhiro).

As per **claim 1**, Kazuhiro teaches a system comprising:

A switching power supply used in a radio receiver (last sentence of abstract teaches a receiver)

Switched mode circuitry operating at a selected switching frequency (abstract teaches a VCO Crystal Oscillator that is used to determine the frequency of a switching power supply).

Circuitry for setting said switching frequency of said switched mode circuitry as a function of a frequency of a signal being received by said radio receiver (abstract teaches a CPU/controller that controls oscillating frequency of the crystal oscillator circuit in such a way that the harmonic wave frequency of the switching frequency does not become identical with the receiving frequency)

As per **claim 2**, Kazuhiro teaches claim 1 wherein said switched mode circuitry comprises a switching power supply (title).

As per **claim 3**, Kazuhiro teaches claim 1 **but is silent on** wherein said switched mode circuitry comprises a Class D amplifier.

The examiner puts forth that several classes of amplifiers are known in the art, including Class A, B, AB, C and D. Class D amplifiers are also known as switching amplifiers. Further to this point is the fact that Kazuhiro shows an (operational) amplifier

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in his diagram (#7) which is broadly interpreted by the examiner to be a Class D amplifier.

The examiner takes Official Notice that the use of Class D amplifiers are well known in the art of audio engineering.

It would have been obvious to one skilled in the art at the time of the invention to modify Kazuhiro, such that a Class D amplifier is used, to provide efficiency gains which are associated with a Class D amplifier (as opposed to using another more inefficient amplifier).

As per **claim 6**, Kazuhiro teaches claim 1 wherein said circuitry for setting switching frequency includes a CPU (eg. microcontroller) operable to select said switching frequency in response to selection of a reception frequency band by user input (abstract and figure).

As per **claim 7**, Kazuhiro teaches claim 1 wherein said circuitry for setting switching frequency detects said frequency of said signal received by said radio receiver by measuring a local oscillator frequency (abstract – teaches control voltage oscillator is controlled by a CPU which determines the receiving frequency of a receiver).

As per **claim 8**, Kazuhiro teaches claim 1 wherein said switching frequency is selected such that at least one harmonic of said switching frequency lies outside a frequency band including said signal being received by said radio receiver (abstract – teaches avoiding reception interference caused by harmonic wave AND that the CPU controls the oscillating frequency such that the harmonic wave of the switching frequency does not become identical with the receiving frequency of the receive which is broadly interpreted by the examiner to read on “lies outside a frequency band including said signal being received”).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuhiro in view of Wilcox et al. US Patent 4,048,561 (hereafter Wilcox).

As per **claim 4**, Kazuhiro teaches claim 1 wherein said circuitry for setting switching frequency of said switched mode circuitry comprises;

A crystal oscillator for generating said switching frequency from a crystal
(abstract)

But is silent on

A plurality of crystals of differing resonance frequencies

Control circuitry for selecting said selected one of said crystals

Wilcox teaches transmitter/receiver that uses multiple crystals for each oscillator which are alternatively selectable (C3, L44-68 to C4, L1-2 and C12, L63-68 to C13, L1-21 and figure 1).

It would have been obvious to one skilled in the art at the time of the invention to modify Kazuhiro, such that a plurality of crystals with differing frequencies are used/selected, to provide multiple fixed-frequency oscillators instead of one oscillator that must perform over a large range of frequencies.

Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuhiro in view of Foord al. US Patent 4,868,539 (hereafter Foord).

As per **claim 5**, Kazuhiro teaches claim 1 **but is silent on** wherein said circuitry for setting switching frequency of said switched mode circuitry comprises;

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A signal generator for generating a base frequency

A programmable divider for dividing said base frequency by a selected divisor to generate said switching frequency

Control circuitry for selecting said divisor.

Food teaches a system for an audio frequency signal that uses a crystal oscillator to generate a base frequency (C4, L23-35) and a programmable divider (C9, L45-50)

It would have been obvious to one skilled in the art at the time of the invention to modify Kazuhiro, such that the system generates a base frequency and uses a programmable divider and selects said divisor, to provide means for the system to obtain a divided base frequency to form a control frequency.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

1. Motahashi US Patent 6,275,715 teaches transmission power restriction
2. Russo et al. US Patent 5,765,113 teaches avoiding receiver desensitization
3. Salinger US Patent 6,304,594 teaches interference detection and avoidance
4. Davis US Patent 5,471,663 teaches control of radio frequency interference
5. Otake US Patent 5,995,390 teaches power supply control.
6. Attwood US Patent 4,692,851 teaches harmonic-resonant power supply.
7. Wissel et al. US Patent 4,188,585 teaches receiver system.
8. Eng US Patent 5,072,171 teaches synchronized switching
9. Kirchberg Jr. et al. US Patent 5,043,857 teaches control of PWM inverters.

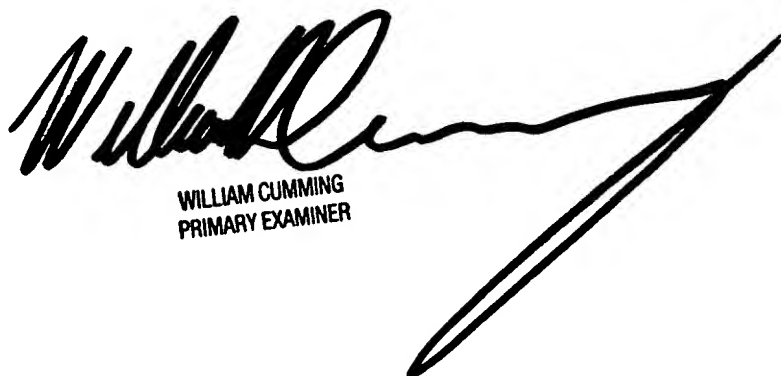
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 703-306-5426. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Hunter can be reached on 703-308-6732. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

SMD
December 20, 2002



WILLIAM CUMMING
PRIMARY EXAMINER